

pronounced it the residence of a mind of strong powers. He requested to see my drawings, anxious to see the plants I had introduced besides the birds I had drawn. Finding a strange plant among my drawings he denied its authenticity; but on my assuring him that it grew in the neighborhood, he insisted on going off instantler to see it. When I pointed it out the naturalist lost all command over his feelings and behaved like a maniac in expressing his delight. He plucked the plants one after another, danced, hugged me in his arms, and exultingly told me he had got, not merely a new species, but a new genus. After a day's pursuit of natural history studies, the stranger was accommodated with a bedroom. We had all retired to rest; every person I imagined was in deep slumber save myself, when of a sudden I heard a great uproar in the naturalist's room. I got up and reached the place in a few moments and opened the door; when, to my astonishment, I saw my guest running naked, holding the handle of my favorite violin, the body of which he had battered against the walls in attempting to kill the bats which had entered by the open window, probably attracted by the insects flying around his candle. I stood amazed, but he continued running round and round, until he was fairly exhausted, when he begged me to procure one of the animals for him, as he felt convinced that they belonged to a "new species". Although I was convinced to the contrary, I took up the bow of my demolished Cremona, and administering a smart tap to each of the bats as it came up, soon got specimens enough. The war ended, I again bade him good night, but could not help observing the state of the room. It was strewed with plants, which had been previously arranged with care. He saw my regret for the havoc that had been created, but added that he would soon put his plants to right—after he had secured his new bats."—M. S. B.

EDITORIAL NOTES.

PROF. E. J. HILL, of Englewood, Ill., gave a lecture on the "Means of Plant Dispersion" before the Chicago Microscopical Society at their January meeting.

MR. WILLIAM R. DUDLEY, in the *Torrey Bulletin* for January, describes, with the help of a plate, some interesting cases of adnation occurring between the berries and leaves of *Mitchella repens*.

L. JUST has found that green plants cannot assimilate carbonic oxide but that it does them no harm except when its proportion in the atmosphere exceeds 10 per cent. It then prevents the formation of chlorophyll and hinders assimilation and growth.

DR. MAXWELL T. MASTERS has described in the *Journal of Botany* for February some new *Passiflorea*, all from South America. A new genus, *Mitostenma*, is represented by two species, one from South Brazil and the other from British Guiana. The genus *Passiflora* receives five new species.

MR. JOSEPH F. JAMES publishes a paper on "Pitcher Plants" in the *March Naturalist*, in which he advances the idea that in *S. purpurea*

the pollen or some secretion of the flower is intoxicating and so the insects drop over the edge of the broad stigma into the open leaf cups below. The theory is supported by analogy and the position of the parts rather than by any direct observation.

M. J. VESQUE has succeeded in devising a method by which the movements of water in plants can be directly observed. In applying this method in testing the theories that are held with regard to the exact route of the ascending water, it appears that the true view is a "golden mean." Under certain conditions the water is transferred by means of the cavities themselves, but they may also serve as reservoirs.

R. ZEILLER has found the stomata on a fossil Cretaceous conifer quite well preserved. Curiously, the cells guarding each stoma are four and occasionally five in number arranged radiately, thus leaving instead of a simple slit a star shaped opening with four or five rays. The stomata are arranged in rows and the orifice is situated at the bottom of a slight depression which is surrounded as in living allies by a slightly projecting edge of cuticle.

MR. FRANCIS WOLLE, of Bethlehem, Penn., in a recent letter, refers to the article in the January number of the *American Naturalist* on the method to be used in interpreting the microscopic portion of the descriptions of Schweinitz, and confirms the conclusions there given. He was in youth acquainted with Schweinitz, and sent him specimens. His microscope was of German make, and in its day was considered a very good one, but would not now be serviceable.

MR. GRANT ALLEN'S theory that petals are transformed stamens rather than leaves, and that hence the earliest and simplest existing petals would be yellow, cannot carry conviction without answering some very serious objections. How the line can be drawn between petals and sepals it is hard to say, and from colored sepals to colored bracts is not a great distance and the relation between leaf and petal seems still a very close one. That yellow is the prevailing color in the *Compositae* and very common in *Leguminosae* and *Orchidaceae*, which are very far from being the "simplest types," is also hard to explain if we accept the statement that the earliest and simplest existing petals would be yellow, and that the colors would change with increased complexity.

DR. J. G. BAKER is publishing in the *Journal of Botany* a Synopsis of the genus *Selaginella*. It seems that, ferns excluded, half the known vascular Cryptogams belong to this genus. Its headquarters are in Tropical America, only two species extending into Europe, and those of the Cape, Temperate Australia, etc., being by no means numerous. The leaf-organs furnish characters for an easy division into four subgenera, depending upon "their arrangement upon either a distichous or multifarious plan and their uniformity in shape and character or dimorphism." The names given to these subgenera are *Selaginella* proper, *Stachygyndrum*, *Homostachys*, and *Heterostachys*, and under them are grouped 312 species.

PROF. J. G. LEMMON claims to have discovered that the potato is indigenous to Arizona. In the Huachuca Mountains last season, in July, he discovered a species of *Solanum* in full bloom, with both the white and

blue flowers. By the 1st of September undoubted potatoes had formed, about an inch and a half long by half as wide and a third as thick. Since then tubers have been found in the same region perfectly white and as large as hen's eggs. If this plant really is the original of all our cultivated varieties much may be hoped from its cultivation, in the way of regenerating the old varieties which have become weak, and we hear that Prof. Meehan predicts great results from this discovery. It is needless to say that Prof. Lemmon found the Colorado beetle quietly munching the leaves of this indigenous potato.

DR. GRAY reviewing in *Science* DeCandolle's work, *Origine des plantes cultivees*, claims that our common bean, *Phaseolus vulgaris*, is a native of America. This is one of the three cultivated plants out of a total of 247, the other two being the rather unimportant species of *Cucurbita*, *C. moschata* and *C. ficifolia*, which DeCandolle is unable to trace to its original country. Dr. Gray maintains that it is American, as he has previously done with Indian corn and pumpkins. Fruits and seeds of it were found in the tombs of the ancient Peruvians at Ancon, along with other vegetable products belonging solely to this continent, and with the other two vegetables named, has been cultivated from aboriginal times from Mexico to Canada. It is probable, however, that neither beans nor pumpkins were originally indigenous north of Mexico, or possibly north of the isthmus of Panama.

DR. GRAY, in a private letter, gives us some interesting information concerning Dr. Torrey which so well illustrates his generous disposition that we quote it as follows: "Sir Wm. Hooker confided to Dr. Torrey, at the time when Dr. Torrey visited him at Glasgow, the Carices of those northern collections to be worked up by him. But, while the bundles were still unopened, Dr. Chester Dewey made him a visit at New York. Dr. Dewey was the author of a rival monograph of American Carices, which was published in numerous articles in *Silliman's Journal*, partly contemporaneously with the monograph of Schweinitz and Torrey, and partly later. An inspection of those rich northern collections revived Dr. Dewey's interest in the subject; observing which Dr. Torrey generously offered the collection to his rival for study; and the latter continued his monograph with these materials. Later, when Dr. Torrey had monographed the other N. American *Cyperaceae*, he appended to it a revised arrangement of *Carex*, and added some new species.

THE FIRST THREE NUMBERS of the new American Journal, *Science* have come to hand. It is a 4to of about 28 pages, and reminds one of the English journal *Nature*, and like that appears weekly. The term "science" has been liberally construed, but in the multiplicity of departments botany receives due attention. The first number devotes five columns to a review by Dr. Gray of DeCandolle's new work on the origin of cultivated plants. In the weekly summary of the progress of science, botany receives two columns in each number. The notes have

so far been prepared by Dr. G. L. Goodale and Mr. Sereno Watson, of Cambridge, Mass., Prof. Wm. Trelease, of Madison, Wis., and Mr. Leo Lesquereux, of Columbus, Ohio. They embrace 32 separate items gleaned from no less than 18 journals, of which two-thirds are foreign, and cover a wide range of topics. The journal is as invaluable to the botanist as to the worker in any other department of science. It must, however, be regretted that the latest information regarding the minute structure of plants and the vast and interesting field of the lower orders does not receive more attention.

CURRENT LITERATURE.

On the Structures which favor Cross-Fertilization in several Plants (with three plates). By William Trelease. From the Proceedings of the Boston Society of Natural History, Vol. XXI, March 15, 1882. The author of this valuable contribution to the literature of cross-fertilization has long been engaged in a careful investigation of the subject and has repeatedly published valuable results. The present pamphlet is a collection of observations heretofore unpublished, and contains notes upon certain of the *Lemnaceae*, *Proteaceae*, *Rutaceae*, *Ericaceae*, *Labiatae* and *Acanthaceae*, for the most part exotics. *Lemna minor*, however, is a native, and this species, one of the very smallest of phanerogams, seems to be well adapted for crossing though if that is a failure there is a chance for self-fertilization. It is protogynous and the two anthers mature successively some days after the stigma. Cross-fertilization is effected by the aid of currents of water, making it a hydrophilous plant. The *Proteaceae* are found to be apparently adapted to self-fertilization, but are so formed as to favor crossing, sometimes even to the exclusion of the former, the pollinators including bees, butterflies, and three distinct groups of birds, Kerner's curious conjecture that in *Dryandra* the transfer of the pollen is effected by the Kangaroos being mentioned simply as a curiosity. But our space forbids any fuller mention of the many interesting details to be met upon every page of this pamphlet. Strange as many of the exotic forms are our interest centers about the little *Lemna* whose effort after crossing is a very strong argument in favor of the idea that continued propagation by self-fertilization is not best for a species.

Supplement to Chapman's Botany.—Chapman's Flora of the Southern States has so long been out of print, and discoveries and changes in nomenclature have been so numerous that we had hoped for a revision rather than a reprint with a supplement. It would, however, probably be too much to ask of our oldest American botanist, and we take this supplement as the best substitute, being really a condensed record of discoveries, most of which have already been noted in our various periodicals and published proceedings of our learned societies. Most of the additions come from Florida, whose flora, so deeply tinged with West Indian forms, has been most zealously examined for the past few years, and the names of Curtiss, Garber, Miss Reynolds, and others, are closely associated with that of Dr. Chapman himself. No fewer than 200 species from Florida have thus been added to our catalogue of the Southern Flora, and this means only species which have not yet been found to extend beyond the limits of the State. The region most favored in new forms, after Florida, is that nest of mountains which is found